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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,661	10/03/2003	David A. Pegram	2185US	9766
22881	7590	11/01/2005		
ERIC J. KRON ICORIA, INC. 108 T.W. ALEXANDER DRIVE, BUILDING 1A POST OFFICE BOX 14528 RESEARCH TRIANGLE PARK, NC 27709			EXAMINER URBAN, SAMANTHA	
			ART UNIT	PAPER NUMBER
			2174	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/678,661	<b>Applicant(s)</b> PEGRAM ET AL.	
	<b>Examiner</b> Samantha Urban	<b>Art Unit</b> 2174	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-76 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>011604</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference characters not mentioned in the description: "1.3.5.1", "1.3.99.1", "1.9.3.1", and "1.10.2.2" in Figure 6; "1.3.5.1", "1.3.99.1", "1.6.5.3", "1.9.3.1", and "1.10.2.2" in Figures 7-9; and "1.10.2.2" in Figure 11. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference characters in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The use of the trademarks JAVA, SUN MICROSYSTEMS, SOLARIS, WINDOWS, MAC, LINUX, ORACLE, SQL SERVER, and J-INTEGRA has been noted in

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this application. They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

### ***Claim Objections***

3. Claims 5, 9, 12-28, 35, 43, 47, 50-66, 69, and 72-73 are objected to because of the following informalities:

a) claims 5, 16, 43, 54, and 69: the phrase "an histology data" should be changed to --a histology data--

b) claims 9, 20, 35, 47, and 58: the phrase "to a standard" should be changed to --to the standard--

c) claim 12 and 50: the phrase "the data are displayed" should be changed to --the data is displayed--

d) claim 72: the phrase "claim 50" should be changed to --claim 67--

Any claim not specifically addressed, above, is being objected to as incorporating the deficiencies of a claim upon which it depends.

Appropriate corrections are required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11, 16, 20, 23, 25, 27-38, 43, 47, 49, 54, 58, 63, and 65-76 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claims 11, 27-29, 49, and 65-67 recite the limitation "the interaction". There is insufficient antecedent basis for this limitation in these claims.

b) Claims 16, 31, 43, 54, 69, and 75 recite the limitation "the group". There is insufficient antecedent basis for this limitation in these claims.

c) Claims 20, 35, 47, 58, and 73 recite the limitation "the stack". There is insufficient antecedent basis for this limitation in these claims.

d) Claim 23 depends on claim 14. Because claim 15 recites the same limitation as claim 23 and is dependent on claim 14, it is believed that claim 23 was intended to depend on claim 22. Claim 23 has been treated as such for the remainder of this Office Action.

d) Claim 25 and 63 recite the limitation "the graphical display type". There is insufficient antecedent basis for this limitation in these claims.

Appropriate corrections are required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7, 10-18, 21-24, 26-33, 36, 38-45, 48-56, 59-62, 64-71, 74, and 76 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Thalhammer-Reyero (US # 5,980,096).

For independent claim 1, Thalhammer-Reyero teaches a computer-implemented method for displaying data comprising:

a) providing an icon representative of a single data measurement (column 6, lines 46-49 and 53-55; *simple value*);

b) shading the icon with color, wherein color hue indicates directionality of change relative to a standard (column 38, lines 36-41 and column 39, lines 27-39);

c) adjusting color saturation in the shaded icon when the single data measurement is changed relative to the standard, wherein amount of color indicates degree of change relative to the standard (column 39, lines 27-39); and

d) displaying the icon generated by steps (a) through (c) singularly or with a plurality of icons generated by steps (a) through (c) (column 14 lines 37-41 & 53-54 and column 26, lines 51-56).

Claim 39 claims a system, but it is similar in scope to claim 1, and is therefore rejected under similar rationale.

As per claim 2, Thalhammer-Reyero teaches the method of claim 1, wherein the color shading of step (b) is red, green, or gray color (column 82, line 53; *gray*).

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Claims 13, 40, and 51 are similar in scope to claim 2, and are therefore rejected under similar rationale.

As per claim 3, Thalhammer-Reyero teaches the method of claim 1, wherein the data measurement is stored as a numeric value (column 48, lines 37-38) in a data source (column 48, lines 39-40).

Claims 14, 41, and 52 are similar in scope to claim 3, and are therefore rejected under similar rationale.

As per claim 4, Thalhammer-Reyero teaches the method of claim 3, wherein the data source is a database (column 48, lines 39-40).

Claims 15, 42, and 53 are similar in scope to claim 4, and are therefore rejected under similar rationale.

As per claim 5, Thalhammer-Reyero teaches the method of claim 1, wherein the data measurement is selected from the group consisting of a proteomics data measurement (column 53, lines 56-59; column 54, lines 18-20; and column 68, lines 5-41).

Claims 16, 31, 43, 54, and 69 are similar in scope to claim 5, and are therefore rejected under similar rationale.

As per claim 6, Thalhammer-Reyero teaches the method of claim 1, wherein the icon is representative of a single metabolite (column 66, lines 31-34).

Claims 17, 32, 44, 55, and 70 are similar in scope to claim 6, and are therefore rejected under similar rationale.

As per claim 7, Thalhammer-Reyero teaches the method of claim 1, wherein the icon is representative of a single gene (column 54, line 40).

Claims 18, 33, 45, 56, and 71 are similar in scope to claim 7, and are therefore rejected under similar rationale.

As per claim 10, Thalhammer-Reyero teaches the method of claim 1, wherein icons representative of two or more data types are displayed simultaneously (column 66, lines 31-36).

Claims 21, 36, 48, 59, and 74 are similar in scope to claim 10, and are therefore rejected under similar rationale.

As per claim 11, Thalhammer-Reyero teaches the method of claim 3, wherein the interaction between the data source and the iconic display is dynamic (ABSTRACT, first two sentences).

Claims 27, 49, and 65 are similar in scope to claim 11, and are therefore rejected under similar rationale.

For independent claim 12, Thalhammer-Reyero teaches a computer-implemented method for displaying biological sample data, wherein the data are displayed in a biological context (column 5, lines 47-48; column 17, lines 32-36; and FIGURE 25) comprising:

- a) providing an icon representative of a single data measurement (column 6, lines 46-49 and 53-55; *simple value*);
- b) shading the icon with color, wherein color hue indicates directionality of change relative to a standard (column 38, lines 36-41 and column 39, lines 27-39);



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c) adjusting color saturation in the shaded icon when the single data measurement is changed relative to the standard, wherein amount of color indicates degree of change relative to the standard (column 39, lines 27-39);

d) selecting a biological context (column 74, lines 28-30);

e) displaying the biological context (column 5, lines 47-48; column 17, lines 32-36; and column 74, lines 28-30); and

f) displaying the icon generated by steps (a) through (c) singularly or with a plurality of icons generated by steps (a) through (c) in a way that is representative of a relationship between the icon and the biological context (column 26, lines 51-56).

Claim 50 claims a system, but it is similar in scope to claim 12, and is therefore rejected under similar rationale.

As per claim 22, Thalhammer-Reyero teaches the method of claim 12, wherein the biological context is stored as alphanumeric values (column 40, lines 39-45; *text string*) in a data source (column 75, lines 61-66).

Claim 60 is similar in scope to claim 22, and is therefore rejected under similar rationale.

As per claim 23, teaches the method of claim 22, wherein the data source is a database (column 75, lines 61-66).

Claims 30, 61, and 68 are similar in scope to claim 23, and are therefore rejected under similar rationale.

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As per claim 24, Thalhammer-Reyero teaches the method of claim 12, wherein the biological context is represented as a graphical display (column 74, lines 28-30 and FIGURE 12).

Claim 62 is similar in scope to claim 24, and is therefore rejected under similar rationale.

As per claim 26, Thalhammer-Reyero teaches the method of claim 12, wherein the biological context is a biochemical network (column 5, lines 18-21 and column 7, lines 45-48).

Claims 38, 64, and 76 are similar in scope to claim 26, and are therefore rejected under similar rationale.

As per claim 28, teaches the method of claim 22, wherein the interaction between the data source and the display of the biological context is dynamic (column 32, lines 2-26).

Claim 66 is similar in scope to claim 28, and is therefore rejected under similar rationale.

For independent claim 29, teaches a computer-implemented method for supplying a biological context in which to display biological data (column 5, lines 47-48; column 17, lines 32-36; and FIGURE 25) comprising:

a) providing at least one biological context stored as a set of alphanumeric values (column 40, lines 39-45; *text string*) in a data source (column 75, lines 61-66);

b) providing at least one type of graphical display of the biological context (column 74, lines 28-30 and FIGURE 12), wherein the interaction between the data source and the graphical display is dynamic (column 32, lines 2-26);

c) selecting one biological context type for display (column 74, lines 28-30);

d) providing at least one icon representative of at least one biological data measurement (column 6, lines 46-49 and 53-55; *simple value*);

e) displaying the icon with the biological context in a way that is representative of a relationship between the icon and the biological context; and f) optionally, repeating steps (c) through (e) (column 26, lines 51-56).

Claim 67 claims a system, but it is similar in scope to claim 29, and is therefore rejected under similar rationale.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8-9, 19-20, 34-35, 46-47, 57-58, and 72-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thalhammer-Reyero as applied to claims 1, 12, 29, 39, 50, and 67 above, and further in view of FRIESEN et al. (US PG PUB # 2003/0097325 A1, "Friesen").

As per claim 8, Thalhammer-Reyero teaches the icon is representative of a single gene (column 54, line 40).

Thalhammer-Reyero, however, does not specifically teach that icons are displayed in a vertically stacked orientation.

Friesen teaches icons to be displayed in a vertically stacked orientation (paragraph [0033]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have placed the icons in a vertically stacked orientation as taught by Friesen in the display of Thalhammer-Reyero, because displaying biological data is very complex and can be extremely confusing to a human viewer. In some cases, there would have been multiple data measurements displayed for a single case. Therefore, the icons being stacked vertically would have allowed users to quickly make comparisons of the number of genes pertaining to a set of reactions simply by comparing the lengths of the icons.

Claims 19, 34, 46, 57, and 72 are similar in scope to claim 8, and are therefore rejected under similar rationale.

As per claim 9, Friesen teaches wherein iconic placement in the stack is determined by directionality and magnitude of change as compared to a standard (paragraph [0033]).

Claims 20, 35, 47, 58, and 73 are similar in scope to claim 9, and are therefore rejected under similar rationale.

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7. Claims 25, 37, 63, and 75 are rejected under 35 U.S.C. 103(a) as being obvious over Thalhammer-Reyero.

As per claim 25, Thalhammer-Reyero teaches the method of claim 24, wherein the graphical display type is selected from the group consisting of hierarchical (column 4, lines 1-11 and FIGURE 25) and orthogonal (FIGURE 31)

Thalhammer-Reyero, however, does not specifically teach that the graphical display type could also have been selected from the group organic and circular.

Official Notice is given that the use of organic and circular display types for biological data is notoriously known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made that it is merely a designer's implementation preference to use one display type over another. Displaying data in different ways visually would have allowed a person to draw more conclusions based on other representations.

Claims 37, 63, and 75 are similar in scope to claim 25, and are therefore rejected under similar rationale.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following publications all have to do with displaying biological data:

Bassett, Jr. et al. (US # 6,847,897 B1)

Chamberlin et al. (US # 6,941,317 B1)

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Kehr et al. (US PG PUB # 2003/0036683 A1)

Kim et al. (US PG PUB # 2002/0087275 A1)

Castle et al. (US PG PUB # 2004/0110193 A1)

Kuchinsky et al. (US PG PUB # 2005/0027729 A1)

Overbeek et al. (US PG PUB # 2002/0120602 A1)

COFFIN et al. (WO 2004114081 A2)

The following publications all have to do with icons changing in color:

Green et al. (US # 5,333,256)

Markham et al. (US PG PUB # 2003/0158795 A1)

Taylor (US PG PUB # 2002/0085001 A1)

Peterson et al. (US # 5,819,245)

### ***Inquiries***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samantha Urban whose telephone number is 571-272-0848. The examiner can normally be reached on M-Th 7:30-5PM; alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine Kincaid can be reached on 571-272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

*Kristine Kincaid*  
KRISTINE KINCAID  
SUPERVISORY PATENT EXAMINER  
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Samantha Urban  
Examiner  
Art Unit 2174

SLU